

## CLAIMS



What is claimed is:

5 1. Apparatus for contact-less communications system comprising:

a separable transformer means including a primary upstream transformer half and a secondary upstream transformer half adapted for magnetic coupling, at least one of said halves having a core of ferrite material for operating at a frequency of at least five (5) to ten (10) times the maximum upstream bit rate;

10 a power supply circuit connected to the said secondary upstream transformer half including a rectifying means for creating a constant DC voltage from the alternating voltage induced in the secondary upstream transformer half by the primary upstream transformer half;

15 a clock recovery circuit connected to the said secondary upstream transformer half;

20 an amplitude modulation means to induce the upstream data in the primary upstream transformer half, said data being sent through the inductive link set up by the primary and secondary upstream transformer halves;

a data recovery circuit connected to the said secondary upstream transformer half; including an amplitude demodulation means for receiving the upstream data sent via the inductive link set up by the primary and secondary upstream transformer halves.

25 a second contact-less communications means to provide the downstream data link;

2. Apparatus for contact-less communications system as per claim 1, where the contact-less downstream data link is implemented as a second inductive link

30 an amplitude modulation means to induce the downstream data in the primary downstream

transformer half, said data being sent through the inductive link set up by the primary and secondary downstream transformer halves;

a data recovery circuit connected to the said secondary downstream transformer half; including  
5 an amplitude demodulation means for receiving the downstream data sent via the inductive link set up by the primary and secondary downstream transformer halves.

3. Apparatus for contact-less communications system as per claim 1, where the contact-less downstream data link is implemented as a second inductive link

10 a phase modulation means with input connected to the said secondary upstream transformer half, with output connected to the said primary downstream transformer half;

15 a downstream data recovery circuit including a phase demodulator means connected to the secondary downstream transformer half;

4. Apparatus for contact-less communications system as per claim 3, where the contact-less downstream data link is implemented as a second inductive link

20 a phase modulation means including a switch with input connected to the said secondary upstream transformer half, with output connected to the said primary downstream transformer half and with switching control driven by the downstream data in order to alter the phase of its input;

25 a downstream data recovery circuit including a phase comparator means connected to the said primary upstream transformer half and to the said secondary downstream data half;

5. Apparatus for contact-less communications system as per claim 1, where the downstream data link is implemented as an optical link;

30 an amplitude modulation means including an infrared diode to transmit the downstream data;

